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EXAMINER	
HANNAHER, CONSTANTINE	
ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,061	REN ET AL.	
	Examiner	Art Unit	
	Constantine Hannaher	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *21-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-23* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20030702*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on March 17, 2005 is acknowledged. The traversal is on the ground(s) that the groups are related. This is not found persuasive because applicant's representative is unable to point to any error in the examiner's finding of *distinctness between related inventions* as set forth in the requirement mailed March 10, 2005.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 21-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 17, 2005.

Information Disclosure Statement

3. The examiner has considered information considered by the Office in a parent application when examining this continuing application, and the application file reflects that fact. A list of the information need not be submitted in the continuing application unless applicant desires the information to be printed on the patent. MPEP § 609.

Claim Objections

4. Claim 10 is objected to because of the following informalities: the claim lacks a terminating period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 9, 4-8, 11, 13, 19, and 14-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Possin *et al.* (US006167110A).

With respect to independent claim 1, Possin *et al.* discloses a radiation detector (Fig. **1**) comprising a first array **22** with a first photon incident surface, a second array **22** with a second photon incident surface, and a scintillator (array) **34** extending from the first photon incident surface to the second incident surface (as is apparent from the view since the extent of scintillator **34** encompasses multiple arrays **22**).

With respect to dependent claim 3, the scintillator **34** in the radiation detector of Possin *et al.* comprises a plurality of optical fibers (column 6, lines 9-16).

With respect to dependent claim 9, the plurality of optical fibers in the radiation detector of Possin *et al.* are oriented as recited (column 6, lines 16-18).

With respect to dependent claim 4, the scintillator **334** in the radiation detector of Possin *et al.* (Fig. **3**) comprises a sheet of scintillator material (column 7, lines 22-31).

With respect to dependent claim 5, the scintillator (array) in the radiation detector of Possin *et al.* is configured as recited in view of the direction of a plurality of optical photons from scintillator **34** to the photon incident surfaces of multiple arrays **22**.

With respect to dependent claim 6, the arrays **22** in the radiation detector of Possin *et al.* comprise a plurality of sensor elements comprising a plurality of photosensor devices **23** (especially in view of the grouping illustrated in Fig. **7**).

With respect to dependent claim 7, the photosensor devices **23** in the radiation detector of Possin *et al.* are disposed as recited in view of the nearly identical language of column 3, lines 1-5).

With respect to dependent claim 8, the photosensor devices **23** in the radiation detector of Possin *et al.* are disposed as recited in view of the nearly identical language of column 3, lines 5-9).

With respect to independent claim 11, Possin *et al.* discloses a method for fabricating radiation detector corresponding to the illustrated detector **20** (Fig. **1**) which would comprise the steps of fabricating a first array **22** with a first photon incident surface, fabricating a second array **22** with a second photon incident surface, and positioning a scintillator (array) **34** between the two arrays such that the scintillator extends from the first photon incident surface to the second incident surface (as is apparent from the view since the extent of scintillator **34** encompasses multiple arrays **22**).

With respect to dependent claim 13, the positioning of the scintillator **34** in the radiation detector fabrication method of Possin *et al.* comprises the step of positioning a plurality of optical fibers (column 6, lines 9-16).

With respect to dependent claim 19, the positioning of the plurality of optical fibers in the radiation detector fabrication method of Possin *et al.* is as recited (column 6, lines 16-18).

With respect to dependent claim 14, the positioning of the scintillator **334** in the radiation detector fabrication method of Possin *et al.* (Fig. **3**) comprises the step of positioning a sheet of scintillator material (column 7, lines 22-31).

With respect to dependent claim 15, the positioning of the scintillator (array) in the radiation detector fabrication method of Possin *et al.* is as recited in view of the direction of a plurality of optical photons from scintillator **34** to the photon incident surfaces of multiple arrays **22.**

With respect to dependent claim 16, the fabrication of the arrays **22** in the radiation detector fabrication method of Possin *et al.* comprises the step of fabricating a plurality of photosensor devices **23.**

With respect to dependent claim 17, the fabrication of the photosensor devices **23** in the radiation detector fabrication method of Possin *et al.* is as recited in view of the nearly identical language of column 3, lines 1-5).

With respect to dependent claim 18, the fabrication of the photosensor devices **23** in the radiation detector fabrication method of Possin *et al.* is as recited in view of the nearly identical language of column 3, lines 5-9).

7. Claims 1, 4, 5-7, 11, 14, and 15-17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bjorkholm *et al.* (US004303860A).

With respect to independent claim 1, Bjorkholm *et al.* discloses a radiation detector (Fig. **2**) comprising a first array **5** with a first photon incident surface, a second array **5** with a second photon incident surface, and a scintillator **3** extending from the first photon incident surface to the second incident surface (as is apparent from the view since the extent of scintillator **3** encompasses multiple arrays **5**).

With respect to dependent claim 4, the scintillator **3** in the radiation detector of Bjorkholm *et al.* (Fig. **2**) comprises a sheet of scintillator material (column 3, line 67).

With respect to dependent claim 5, the scintillator in the radiation detector of Bjorkholm *et al.* is configured as recited in view of the direction of a plurality of optical photons from scintillator **3** to the photon incident surfaces of multiple arrays **5**.

With respect to dependent claim 6, the arrays **5** in the radiation detector of Bjorkholm *et al.* comprise a plurality of sensor elements comprising a plurality of photosensor devices **7**.

With respect to dependent claim 7, the photosensor devices **7** in the radiation detector of Bjorkholm *et al.* are disposed as recited in view of Fig. **1**.

With respect to independent claim 11, Bjorkholm *et al.* discloses a method for fabricating radiation detector corresponding to the illustrated detector (Fig. **2**) which would comprise the steps of fabricating a first array **5** with a first photon incident surface, fabricating a second array **5** with a second photon incident surface, and positioning a scintillator **3** between the two arrays such that the scintillator extends from the first photon incident surface to the second incident surface (as is apparent from the view since the extent of scintillator **3** encompasses multiple arrays **5**).

With respect to dependent claim 14, the positioning of the scintillator **3** in the radiation detector fabrication method of Bjorkholm *et al.* (Fig. **2**) comprises the step of positioning a sheet of scintillator material (column 3, line 67).

With respect to dependent claim 15, the positioning of the scintillator in the radiation detector fabrication method of Bjorkholm *et al.* is as recited in view of the direction of a plurality of optical photons from scintillator **3** to the photon incident surfaces of multiple arrays **5**.

With respect to dependent claim 16, the fabrication of the arrays **5** in the radiation detector fabrication method of Bjorkholm *et al.* comprises the step of fabricating a plurality of photosensor devices **7**.

With respect to dependent claim 17, the fabrication of the photosensor devices **7** in the radiation detector fabrication method of Bjorkholm *et al.* is as recited in view of Fig. **1**.

8. Claims 1, 5-7, 11, and 15-17 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cusano (US004187427A).

With respect to independent claim 1, Cusano discloses a radiation detector (Fig. **1**) comprising a first array **18** comprising a first photon incident surface, a second array **18** comprising a second photon incident surface, and a scintillator array **10** extending from the first photon incident surface to the second incident photon surface (Fig. **6**).

With respect to dependent claim 5, the scintillator array **10** in the radiation detector of Cusano is configured as recited as is apparent from the view (Fig. **6** in view of single crystal **10** and the omission of horizontal collimator member **40**, see column 5, lines 40-47 and column 4, line 67 to column 5, line 1).

With respect to dependent claim 6, the two arrays **18** in the radiation detector of Cusano each comprises a plurality of sensor elements **42** comprising a plurality of photosensor devices **43** (Fig. **7**).

With respect to dependent claim 7, the plurality of photosensor devices **43** in the radiation detector of Cusano are disposed in a linear array fashion (Fig. **7**).

With respect to independent claim 11, Cusano discloses a method for fabricating the illustrated radiation detector (Fig. **1**) which would comprise the steps of fabricating a first array **18** comprising a first photon incident surface, fabricating a second array **18** comprising a second photon incident surface, and positioning a scintillator array **10** between the two arrays such that the scintillator **10** extends from the first photon incident surface to the second incident photon surface (Fig. **6**).

With respect to dependent claim 15, the positioning of the scintillator array **10** in the radiation detector fabrication method of Cusano is as recited as is apparent from the view (Fig. **6** in view of single crystal **10** and the omission of horizontal collimator member **40**, see column 5, lines 40-47 and column 4, line 67 to column 5, line 1).

With respect to dependent claim 16, the fabrication of the two arrays **18** in the radiation detector fabrication method of Cusano comprises fabricating arrays **42** comprising a plurality of photosensor devices **43** (Fig. **7**).

With respect to dependent claim 17, the fabrication of a plurality of photosensor devices **43** in the radiation detector fabrication method of Cusano comprises fabricating arrays **42** including a plurality of photosensor device **43** disposed in a linear array fashion (Fig. **7**).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Possin *et al.* (US006167110A) in view of Hu *et al.* (US005510622A).

With respect to dependent claim 2, the arrays **22** in the radiation detector of Possin *et al.* have no particular detector alignment. Hu *et al.* shows that an offset of specifically one-half detector pitch (Fig. **3A**, column 3, lines 27-30) between two arrays **18A**, **18B**, or of specifically one-half detector pitch (Fig. **3B**, column 3, lines 37-39) between two arrays **18C**, **18D**, in a radiation detector is superior to a plurality of arrays with no offset (Fig. **4**, see also column 1 line 55 to column 2, line

9). In view of the reduced detector pitch without smaller detector elements as suggested by Hu *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the radiation detector of Possin *et al.* to offset a first array **22** from a second array **22** by one-half the pitch of detectors **23**. In view of Figs. **1** and **2** of Possin *et al.*, the offset suggested by Hu *et al.* in one of Figs. **3A** and **3B** would be normal to "an" incident x-ray direction.

With respect to dependent claim 12, the arrays **22** in the radiation detector fabrication method of Possin *et al.* have no particular detector alignment. Hu *et al.* shows that an offset of specifically one-half detector pitch (Fig. **3A**, column 3, lines 27-30) between two arrays **18A**, **18B**, or of specifically one-half detector pitch (Fig. **3B**, column 3, lines 37-39) between two arrays **18C**, **18D**, in a radiation detector is superior to a plurality of arrays with no offset (Fig. **4**, see also column 1 line 55 to column 2, line 9). In view of the reduced detector pitch without smaller detector elements as suggested by Hu *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the radiation detector fabrication method of Possin *et al.* to position a first array **22** offset from a second array **22** by one-half the pitch of detectors **23**. In view of Figs. **1** and **2** of Possin *et al.*, the offset suggested by Hu *et al.* in one of Figs. **3A** and **3B** would be normal to "an" incident x-ray direction.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Possin *et al.* (US006167110A) in view of Cusano (US004187427A) and Hu *et al.* (US005510622A).

With respect to independent claim 10, Possin *et al.* discloses a radiation detector (Fig. **1**) comprising a first array **22** with a first photon incident surface, a second array **22** with a second photon incident surface, wherein the two arrays **22** comprise a plurality of sensor elements comprising a plurality of photosensor devices **23** (especially in view of the grouping illustrated in Fig. **7**), and a scintillator (array) **34** extending from the first photon incident surface to the second

incident surface (as is apparent from the view since the extent of scintillator **34** encompasses multiple arrays **22**), configured as recited in view of the direction of a plurality of optical photons from scintillator **34** to the photon incident surfaces of multiple arrays **22**, and comprising a fiber optic scintillator (column 6, lines 9-16) having a plurality of optical fibers bundled and disposed as recited (column 6, lines 16-18), but the fiber optic scintillator **34** in the radiation detector **20** of Possin *et al.* is not optically coupled to at least two sensor elements **23** such that sensor elements **23** are disposed at both ends of the plurality of optical fibers but rather that sensor elements **23** are optically coupled at one end (the bottom end) of any one of the plurality of optical fibers (Fig. **2**). Cusano shows (Fig. **1**) that in a radiation detector in which an array of scintillator bodies **10** is disposed such that x rays **50** are incident on the scintillator body **10** substantially perpendicular to the optical axis of the scintillator body (Fig. **6**) it is known to optically couple each scintillator body **10** to at least two sensor elements **18** such that sensor elements **18** are disposed at both ends of the plurality of scintillator bodies **10**. In view of the enhanced capture of the optical output of the scintillator bodies **10** when a detector **18** is provided at each end as described by Cusano (column 4, lines 12-31), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the radiation detector of Possin *et al.* to optically couple sensor elements **23** at the top end of the scintillator **34** fibers as well as at the bottom end. The plurality of sensor elements **23** in the first and second arrays of Possin *et al.* inherently have an aperture pitch size, *e.g.*, Fig. **7**. Hu *et al.* shows that an offset of specifically one-half detector pitch (Fig. **3A**, column 3, lines 27-30) between two arrays **18A**, **18B**, or of specifically one-half detector pitch (Fig. **3B**, column 3, lines 37-39) between two arrays **18C**, **18D**, in a radiation detector is superior to a plurality of arrays with no offset (Fig. **4**, see also column 1 line 55 to column 2, line 9). In view of the reduced detector pitch without smaller detector elements as suggested by Hu *et al.*, it would have been obvious to one

of ordinary skill in the art at the time the invention was made to modify the radiation detector of Possin *et al.* to offset a first array **22** from a second array **22** by one-half the pitch of detectors **23**.

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Possin *et al.* (US006167110A) in view of Cusano (US004187427A).

With respect to independent claim 20, Possin *et al.* discloses a method for fabricating a radiation detector corresponding to the illustrated detector **20** (Fig. **1**) which would comprise the steps of fabricating a first array **22** with a first photon incident surface including a plurality of sensor elements including a plurality of photosensor devices **23** (especially in view of the grouping illustrated in Fig. **7**), fabricating a second array **22** with a second photon incident surface including a plurality of sensor elements including a plurality of photosensor devices **23** (especially in view of the grouping illustrated in Fig. **7**), and positioning a scintillator (array) **34** between the first photon incident surface and the second incident surface (as is apparent from the view since the extent of scintillator **34** encompasses multiple arrays **22**), configured as recited in view of the direction of a plurality of optical photons from scintillator **34** to the photon incident surfaces of multiple arrays **22**, and including a fiber optic scintillator (column 6, lines 9-16) having a plurality of optical fibers bundled and disposed as recited (column 6, lines 16-18), but the fiber optic scintillator **34** in the radiation detector **20** of Possin *et al.* is not optically coupled to at least two sensor elements **23** such that sensor elements **23** are disposed at both ends of the plurality of optical fibers but rather that sensor elements **23** are optically coupled at one end (the bottom end) of any one of the plurality of optical fibers (Fig. **2**). Cusano shows (Fig. **1**) that in a method for fabricating a radiation detector in which an array of scintillator bodies **10** is disposed such that x rays **50** are incident on the scintillator body **10** substantially perpendicular to the optical axis of the scintillator body (Fig. **6**) it is known to optically couple each scintillator body **10** to at least two sensor elements **18** such that sensor

elements **18** are disposed at both ends of the plurality of scintillator bodies **10**. In view of the enhanced capture of the optical output of the scintillator bodies **10** when a detector **18** is provided at each end as described by Cusano (column 4, lines 12-31), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the radiation detector fabrication method of Possin *et al.* to optically couple sensor elements **23** at the top end of the scintillator **34** fibers as well as at the bottom end.

Double Patenting

14. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

15. Claims 1, 3, 9, 4-8, 11, 13, 19, and 14-20 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 3, 9, 4-8, 11, 13, 19, and 14-20 of copending Application No. 10/308,233. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

16. Claims 2, 10, and 12 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 10, and 12 of copending Application No. 10/308,233 in view of Hu *et al.* (US005510622A). See the rejections applied to claims 2, 10, and 12 above in combination with Hu *et al.*

This is a provisional obviousness-type double patenting rejection.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Constantine Hannaher
Primary Examiner